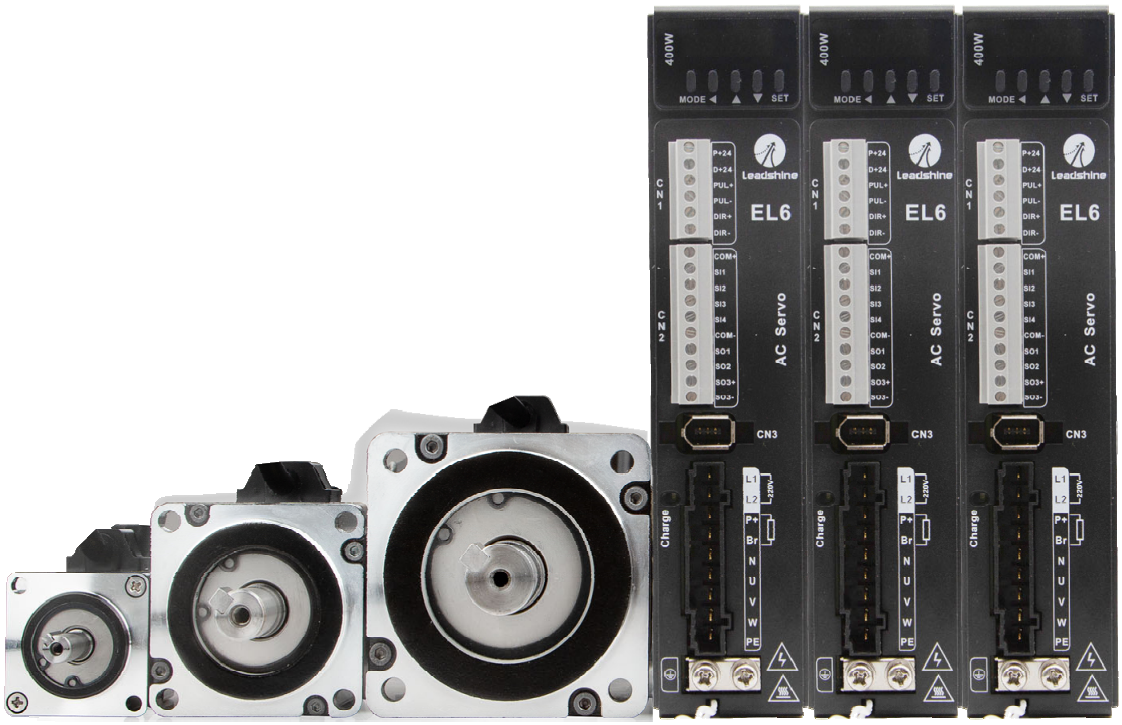
EL6 Series AC Servo Drive



EL6 Series AC Servo Drive

EL6 Series AC servo products are cost-effective AC digital servo which is designed mainly for position high accurate control , power range up to 1kw, which can provide intelligent performance with efficient configuration methods.

Combined with abundant features such as MFC, vibration suppression, Multi-mode filter function etc.
It provides machines a compact size, low tuning works, high resolution encoder up to 23 bits ,which can be used for high accuracy applications

Features:

- Power range : 400w-1000w
- Space Vector Modulation (SVM) Technology
- Efficient configuration methods：2 parameters related, robust Control
- Automatic identification for motor type with 17bit/23bit encoder
- Variety of external command signal: Pulse&Direction/Modbus/CANopen
- Build-in motion engine, internal motion controller used
- 4 Notch filters, Damping filter
- P-N Junction: Exchange power of entire servo drives
- Profile Modes/Position/Build-in Position/Build-in Velocity/Jog
- Encoder output selectable

Part Number	Command Source	Rated Power	Rated Voltage	Cont Current (Arms)	Peak Current (Arms)	Dimension (mm)
EL6-D400Z	Pulse+Direction	400w	1 phase 220vac	3	13	175*156*40
EL6-D750Z		750w	1 phase 220vac	5.2	18.4	175*156*50
EL6-D1000Z		1000w	1 phase 220vac	7.5	26.5	175*156*50
EL6-RS400Z	Pulse+ Direction RS485	400w	1 phase 220vac	3	13	175*156*40
EL6-RS750Z		750w	1 phase 220vac	5.2	18.4	175*156*50
EL6-RS1000Z		1000w	1 phase 220vac	7.5	26.5	175*156*50
EL6-CAN400Z	CANopen	400w	1 phase 220vac	3	13	175*156*40
EL6-CAN750Z		750w	1 phase 220vac	5.2	18.4	175*156*50
EL6-CAN1000Z		1000w	1 phase 220vac	7.5	26.5	175*156*50

Technical Specification

Model			EL6-*400Z	EL6-*750Z	EL6-*1000Z
Cont current			3	5.2	7.5
Peak Current			13	18.4	26.5
Power Supply			400w~1kw Single phase or three phase 220V -15%~+10% 50/60HZ		
Control Method			IGBT SVPWM sinusoidal wave drive		
Encoder Feedback			● 17bit incremental encoder/absolute encoder ● 23bit multi-turn absolute encoder		
IO	Digital IO	Inputs	● 4 programmable digital inputs ● allows sink input/source input ● within the range from 12 VDC to 24 VDC, 30mA		
		Outputs	● 3 programmable digital outputs（2 single-ended, 1 differential）		

			● within the range from 12 VDC to 24 VDC, 30mA
	Pulse	Pulse Input	● Max. input frequency: ● 500 kHz (differential input); ● 200kHz (open collector input)
	Encoder Output	Pulse Output	Encoder ABZ output（A/B/Z single-ended, Z differential）
Communication Port	RS232		For configuration connection
	RS-485		Modbus/RTU*(optional)*，1:N communication up to 31axes to a host
	CANopen		CANopen *(optional)*，1:N communication up to 127 axes to a host
Control Mode			● Profile Modes/Position/Build-in Position/Build-in Velocity/Jog
Operation Interface			Five LED tubes and five keys
Electronic gear ratio			1~8388608
Input Function Configuration			Servo-ON. Alarm clear. Positive/Negative Limit. Control mode switching. Gain switching. Deviation counter clear. Command pulse inhibition. Electronic gear switching. Torque limit switching. Speed zero clamp. Speed command sign input. Torque command sign input. E-STOP. Inertia ratio switching. Internal speed selection
Output Function Configuration			Alarm output. Servo-Ready. Positioning complete. At-speed. Zero-speed. Velocity coincidence. Positional command ON/OFF. Servo-ON. Home-OK
Safty Protection			Over-Current. Over-Voltage. Under-Voltage. Over-Heat. Over-Load. Encoder error. Over-Speed. Running-away. Positive/Negative Limit. Communication error. Position deviation error. Power-line out of phase etc.
Environment	Temperature		Storage: -20-80℃； Installation: 0-55℃
	Humidity		Under 90%RH (free from condensation)
	Altitude		Lower than 1000m
	Vibration		Less than 0.5G (4.9m/s2) 10-60Hz (non-continuous working)

Talent Functions

Inertia ratio identification
Off-line inertia ratio identification, better performance, easy tuning
Position mode/Velocity mode
Supported Position mode/Velocity mode/Torque mode ● Position mode: Profile position/Pulse & direction/Build-in position/RS232/RS485 ● Velocity mode: Profile velocity/Built-in velocity/RS232/RS485
Control mode switching
IO signal for mode switching, select Position mode/Velocity mode
Gain switching
Automatically switch gain under special conditions/ IO signal for gain switching
16 path build-in position mode/velocity mode
No analog control required. Execute by digital IO signal or RS485
Command pulse inhibition
Invalid the pulse input, stop with deceleration
Limit switch
Protective equipment operation
Programmable Inputs and Outputs
● 4 programmable digital inputs ● 3 programmable digital outputs（2 single-ended, 1 differential）
Encoder signal output
Output encoder signal: Single-ended /Differential
Speed zero clamp

If the actual analog input is less than the setting value, the motor will stop rotating in servo-on condition
Vibration Suppression
Specific resonance frequency can be obtained from PC upper computer software according to waveform monitoring, and filter frequency can be set to effectively suppress the oscillation ripple of a certain frequency in the current instruction.
Command filter
To make the positional command divided or multiplied by the electronic gear smooth, set the command filter
Friction torque compensation
Apply feed forward torque superposition directly to torque command

Part number of EL6 Servo Drive

EL6-D 1000 Z

◯,1 ◯,2 ◯,3 ◯,4

NO	Details
①	Series EL6: Servo drive series
②	Command source D:Pulse&Directio version RS: RS485 version CAN: CANopen version
③	Power 0400: 400W 0750: 750W 1000:1000W
④	Encoder Z: Serial encoder

Part Number of ELM Series Servo Motor

ELM 0400 F M 60 H –SS

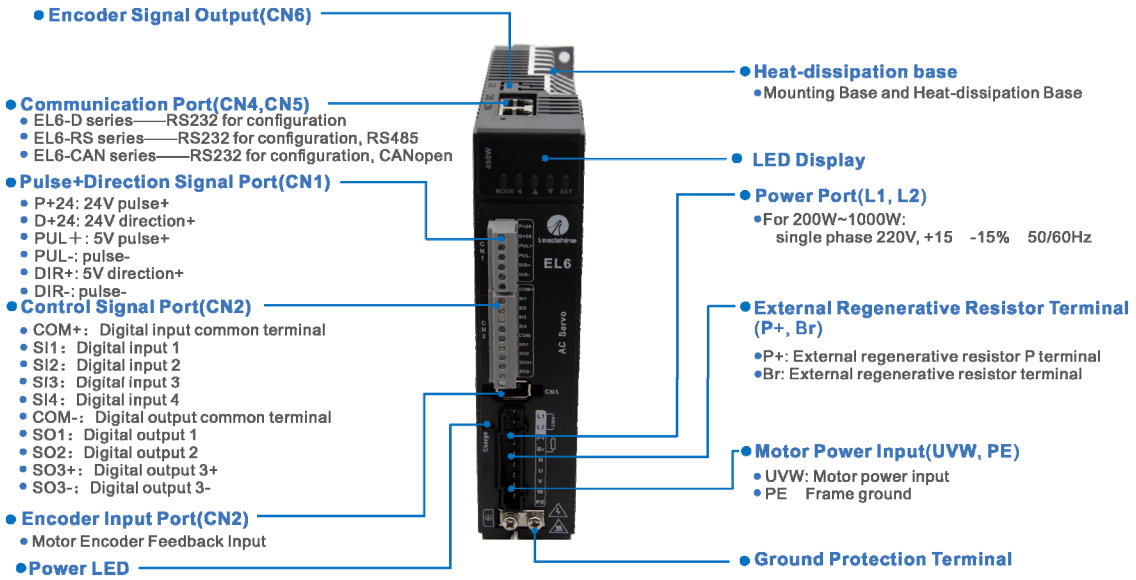
◯,1 ◯,2 ◯,3 ◯,4 ◯,5 ◯,6 ◯,7

NO	Details
	Series Num ELM：ELM series motor
◯,2	Power 0100:100W 0200: 200W 0400: 400W 0600:600W 0750: 750W 1000: 1000W
◯,3	Encoder Type F:17bit magnetic L:23bit absolute
◯,4	Inertia Ratio L: Low M:Medium H:High
◯,5	Frame Size 40:40mm 60:60mm 80:80mm
◯,6	Motor Form
◯,7	Plug Type SS:Plastic plug HH2: aviator plug

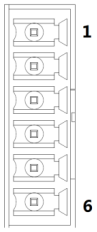
NO	Shaft Form		Brake		Oil Seal	
	Circular shaft	Keyhole	Install	None	Install	None
A	●		●		●	
B	●			●	●	
C	●		●			●
D	●			●		●
E		●	●		●	
F		●		●	●	
G		●	●			●
H		●		●		●

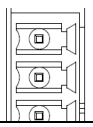
Connectors and Pin Assignment

Port	Function
CN1	Pulse + Direction Signal Port
CN2	Digital input/output Port
CN3	Encoder Input Port
CN4	RS232; RS485 (Only for EL6-RS***Z version); CANopen (Only for EL6-CAN***Z version).
CN5	RS232; RS485 (Only for EL6-RS***Z version); CANopen (Only for EL6-CAN***Z version).
CN6	Encoder output Port(Only for EL6-RS***Z version)
X1	Power Port



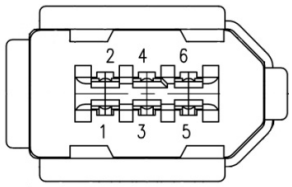
Signal Explanation of Control Signal Port-CN1 and CN2

Port		Pin	Signal	Name	Explanation
CN1		1	PUL + _24	24V pulse+	Max. input frequency: ● 500 kHz (differential input); ● 200kHz (open collector input)
		2	DIR + _24	24V direction+	
		3	PUL +	5V pulse+	
		4	PUL -	Pulse-	
		5	DIR +	5V direction+	
		6	DIR -	Direction-	

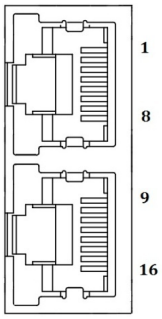
Port		Pin	Signal	Name	Explanation
CN2		1	COM+	Digital input common terminal	4 programmable digital inputs ● allows sink input/source input ● within the range from 12 VDC to 24 VDC, 30mA
		2	SI1	Digital input 1	
		3	SI2	Digital input 2	

		4	SI3	Digital input 3	
		5	SI4	Digital input 4	
		6	COM -	Digital output common- terminal	● 2 programmable digital single-ended outputs ● within the range from 12 VDC to 24 VDC, 30mA
		7	SO1	Digital output 1	
		8	SO2	Digital output 2	
		9	SO3 +	Differential Digital output 3	● 1 programmable digital differential output ● within the range from 12 VDC to 24 VDC,
		10	SO3 -		

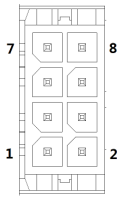
Encoder Input Port-CN3

Port		Pin	Signal
CN3		1	VCC5V
		2	GND
		3	BAT+
		4	BAT-
		5	SD+
		6	SD-
			PE

Bus connector- CN4 and CN5

Port		Pin	Signal
CN4 CN5		1 , 9	RDO+(RS485
		2 , 10	RDO-(RS485-
		3 , 11	/
		4 , 12	/
		5 , 13	/
		6 , 14	TXD(RS232)
		7 , 15	RXD(RS232)
		8 , 16	GND(RS232
			PE

Encoder output Port-CN6

Port		Pin	Signal	Name	Explanation
CN6		1	OCZ	OC output terminal of motor encoder Z phase	Differential output, High >= 2.5vdc, low <= 0.5vdc, maximum current ±20mA
		2	GND	OC output GND terminal of motor encoder	
		3	Z +	Differential output terminal of motor encoder Z phase	
		4	Z -		
		5	B +	Differential output terminal of motor encoder B phase	
		6	B -		
		7	A +	Differential output terminal of motor encoder A phase	
		8	A -		

Wiring

Position Control Mode